OCTOBER 2013   **P/ID 17502/PCASB**

Time : Three hours   Maximum : 100 marks

PART A — (6 × 5 = 30 marks)

Answer any SIX questions.

1. Write about decimal codes.

2. Describe algebraic manipulation in Boolean function.

3. Describe full adder circuit.

4. Give the block diagram of a BCD adder.

5. Describe the basic flip-flop circuit with NOR gates.

6. Describe D flip-flop.

7. Describe ALU with a block diagram.

8. List out the micro operations for an accumulator.

PART B — (7 × 10 = 70 marks)

Answer any SEVEN questions.

9. Obtain the 1's and 2's complement of the following binary numbers :
    (a) 1010101
    (b) 0111000
    (c) 0000001
    (d) 10000
    (e) 00000

10. Simplify the following Boolean functions to a minimum number of literals :

    (a) $xy + xy'$

    (b) $(x + y)(x + y')$

    (c) $xyz + x'y + xyz'$

    (d) $zx + zx'y$

11. Describe magnitude comparator.

12. Illustrate a 3 to 8 line decoder.

13. Describe triggering of Master-Slave flip-flop.

14. Explain the process of state reduction in flip-flops.

15. Discuss on the effect of output carry in the design of arithmetic circuit.

16. Describe bus organisation.

17. Describe one typical stage of an accumulator.

18. Discuss on execution of instructions.

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